

# JOHN A. SCHLUETER

Molecular Materials Research Group  
Materials Science Division (MSD-200)  
Argonne National Laboratory  
9700 South Cass Avenue  
Argonne, IL 60439

Tel: (630)-252-3588  
Fax: (630)-252-9151  
email: [JASchlueter@anl.gov](mailto:JASchlueter@anl.gov)

## PROFESSIONAL INTERESTS

- Molecular Materials Design and Discovery: Guided synthesis, crystallization and characterization of molecular based solids with electronic and/or magnetic properties.
- Use of advanced characterization tools at national user facilities for the development of detailed structure/property correlations in molecular materials under conditions of extreme pressure, magnetic field and temperature.
- Multifunctional molecular materials with applications in superconductivity, spintronics and multiferroics.
- Stabilization of non-equilibrium phases in molecular materials through use of novel crystallization techniques including high pressure (electro)crystallization, ionoelectrocrystallization, flux, cryogenic and supercritical methods.

## EDUCATION

1992     **Ph.D.** (Inorganic Chemistry, Prof. Tobin Marks), Northwestern University, Evanston, IL.  
1988     **M.S.** (Chemistry), Northwestern University, Evanston, IL.  
1987     **B.S.** (Chemistry, Physics), Valparaiso University, Valparaiso, IN.

## PROFESSIONAL EXPERIENCE

1999-present    Chemist, Materials Science Division, Argonne National Laboratory, Argonne, IL.  
1995-1999     Assistant Chemist, Chemistry and Materials Science Division, Argonne National Laboratory, Argonne, IL.  
1992-1995     Postdoctoral Chemist, Chemistry and Materials Science Division, Argonne National Laboratory Argonne, IL.  
1987-1992     Graduate Student, Chemistry Department, Northwestern University, Evanston, IL.  
1986-1987     Student Research Participation Program, Argonne National Laboratory, Argonne, IL.

## HONORS AND AWARDS

2007     Pollution Prevention Award, Argonne National Laboratory  
2004     Outstanding Mentor Award, US Department of Energy  
2001     Decade of Discovery Award presented by the US Department of Energy for sustained outstanding work in the area of organic superconductivity

## PROFESSIONAL COMMITTEES AND ACTIVITIES

- Member of International Organizing Committee for Durham International Training Program 2012
- Member of the International Advisory Board for the Internat. Symp. on Crystalline Organic Metals
- Member of the International Advisory Board for the International Conference on Synthetic Metals
- Chairman of the 2011 Internat. School and Symp. on Multifunctional Molecule-based Materials
- Member of the International Training Program for Molecular Materials
- Member of the National High Magnetic Field User Committee
- Detailee for DOE's EPSCoR and Materials Chemistry programs
- Member of Argonne's Materials Science Division seminar committee
- Member of Argonne's Nanomaterials Safety Committee
- Member of Argonne's Radiation Safety Committee
- Member of the Valparaiso University Chemistry Advisory Board
- Member of the American Chemical Society
- Member of the American Physical Society

**SELECTED PUBLICATIONS** (11 of 283; H-index rating of 28)

1. Zeeman-Driven Phase Transition within the Superconducting State of  $\kappa$ -(BEDT-TTF)<sub>2</sub>Cu(NCS)<sub>2</sub> Wright, J. A.; Green, E.; Kuhns, P.; Reyes, A.; Brooks, J.; Schlueter, J.; Kato, R.; Yamamoto, H. M.; Kobayashi, M.; Brown, S. E. *Phys. Rev. Lett.* **2011**, *107*, 087022.
2. **Journal Cover.** [Cu(HF<sub>2</sub>)<sub>2</sub>(pyz)]<sub>n</sub> (pyz = pyrazine): A Rectangular Antiferromagnetic Lattice with a Spin Exchange Path Made Up of Two Different FHF<sup>-</sup> Bridges. Manson, J. L.; Warter, M. L.; Schlueter, J. A.; Lancaster, T.; Steele, A. J.; Blundell, S. J.; Pratt, F. L.; Singleton, J.; McDonald, R. D.; Lee, C.; Whangbo, M. H.; Plonczak, A. *Angew. Chem. Int. Ed. Engl.* **2011**, *50*, 1573-1576.
3. Sequential Orbital Reorientation in a Magnetic Framework Material Under Pressure Halder, G. J.; Chapman, K. W.; Schlueter, J. A.; Manson, J. L. *Angew. Chem. Int. Ed. Engl.* **2011**, *50*, 419-421.
4. Enhanced  $T_c$  in a Dual Layered Molecular Superconductor. Schlueter, J. A.; Wiehl, L.; Park, H.; de Souza, M.; Lang, M.; Koo, H.-J.; Whangbo, M.-H. *J. Am. Chem. Soc.* **2010**, *132*, 16308-16310
5. Bandwidth Tuning Triggers Interplay of Charge Order and Superconductivity in Two-Dimensional Materials. Kaiser, S.; Dressel, M.; Sun, Y.; Greco, A.; Schlueter, J. A.; Gard, G. L.; Drichko, N. *Phys. Rev. Lett.* **2010**, *105*, 206402.
6. Lattice Effects and Entropy Release at the Low-temperature Phase Transition in the Spin-Liquid Candidate  $\kappa$ -(BEDT-TTF)<sub>2</sub>Cu(CN)<sub>3</sub>. Manna, R. S.; De Souza, M.; Bruhl, A.; Schlueter, J. A.; Lang, M. *Phys. Rev. Lett.* **2010**, *104*, 016403
7. **Invited Review Article.** Tetrathiafulvalene-based Conductors Containing Organometallic Components. Schlueter, J. A. *Topics in Organometallic Chemistry* **2009**, *27*, 1-33.
8. **Journal Cover.** Strong H··F Hydrogen Bonds as Synthons in Polymeric Quantum Magnets: Structural, Magnetic and Theoretical Characterization of [Cu(HF<sub>2</sub>)(pyrazine)<sub>2</sub>](SbF<sub>6</sub>), [Cu<sub>2</sub>F(HF)(HF<sub>2</sub>)(pyrazine)<sub>4</sub>](SbF<sub>6</sub>)<sub>2</sub> and [CuAg(H<sub>3</sub>F<sub>4</sub>)(pyrazine)<sub>5</sub>](SbF<sub>6</sub>)<sub>2</sub>. Manson, J. L.; Schlueter, J. A.; Funk, K. A.; Southerland, H. I.; Twamley, B.; Lancaster, T.; Blundell, S. J.; Baker, P. J.; Pratt, F. L.; Singleton, J.; McDonald, R. D.; Goddard, P. A.; Sengupta, P.; Batista, C. D.; Ding, L.; Lee, C.; Whangbo, M.-H.; Franke, I.; Cox, S.; Baines, C.; Trial, D. *J. Am. Chem. Soc.* **2009**, *131*, 6733-6747.
9. Fluctuating Superconductivity in Organic Molecular Metals Close to the Mott Transition. Nam, M.-S.; Ardavan, A.; Blundell, S. J.; Schlueter, J. A. **2007**, *Nature*, *449*, 584-587.
10. **Journal Cover.** [Cu(HF<sub>2</sub>)(pyz)<sub>2</sub>]BF<sub>4</sub> {pyz = pyrazine}: Long-range Magnetic Ordering in a Pseudocubic Antiferromagnetic Comprised of Bridging HF<sub>2</sub><sup>-</sup> and Pyrazine Ligands. Manson, J. L.; Conner, M. M.; Schlueter, J. A.; Lancaster, T.; Blundell, S. J.; Brooks, M. L.; Pratt, F. L.; Papageorgiou, T.; Bianchi, A. D.; Wosnitza, J.; Whangbo, M.-H. *Chem. Commun.* **2006**, 4894-4896.
11. **Journal Cover & Invited Review Article.** Conducting Organic Radical Cation Salts with Organic and Organometallic Anions, Geiser, U. and Schlueter, J. A. *Chem. Rev.* **2004**, *104*, 5203-5241.

**SELECTED COLLABORATIONS**

Agosta, C. (Clark); Ardavan, A. (Oxford); Blundell, S. (Oxford); Batista, C. (LANL); Brooks, J. (NHFML, FSU); Brown, S. (UCLA); Carrington, A. (Bristol); Dressel, M. (Stuttgart); Drichko, N. (Ioffe); Gard, G. (Portland); Giannetta, R. (Illinois); Goddard, P. (Clarendon); Greene, L. (Illinois); Haddon, R. (UC-Riverside); Hill, S. (NHMFL); Lang, M. (Frankfurt); Malfant, I. (Toulouse); Manson, J. (Eastern Washington); Mielke, C. (LANL); McDonald, R. (LANL); Merino, J. (Madrid); Mueller, J. (Dresden); Musfeldt, J. (Tennessee); Nakottee, H. (NHMFL-LANL); Pratt, F. (ISIS); Singleton, J. (LANL); Stephens, P. (SUNY); Tozer, S. (NHFML, Tallahassee); Whangbo, M. (North Carolina); Wosnitza, J. (Dresden); Xiao, Z. (Northern Illinois).

